Background Study

X.Chen, Y.D.Chan, K.Lesko, C.Okada, A.W.Poon, B.Stokstad, A.Marino, E.Norman

We continued to use the in situ background monitoring technique to determine radioactive background levels in the heavy water and light water region [1]. Results agree well with that obtained by the water assay technique.

We also used the high radon data to calibrate the θ_{ij} distribution (as shown in figure 1) and the nhits spectrum of the ^{214}Bi decay in H_2O.

We also used fluctuation of radon level in both D_2O and H_2O to put upper limits of contamination due to radioactive decays in these two regions [2]. The hot spot in AV was used to estimate contamination from rdioactive decays in the AV while data from the acrylic source was used to put an upper limit on contamination from the PMT β-γ events.

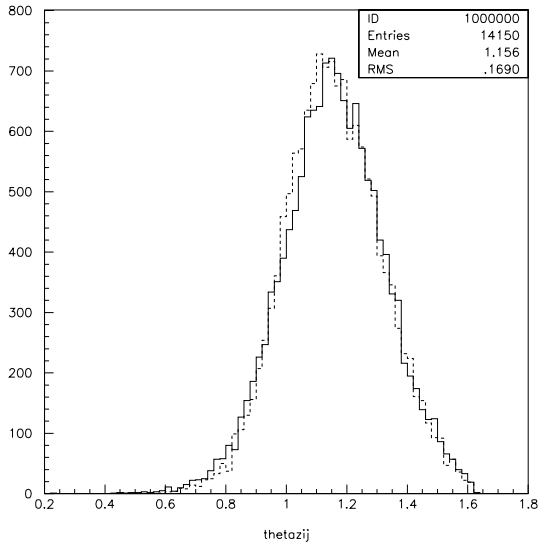

Figure 1: The θ_{ij} distributions of selected events taken in November 1999 (dashed line) and MC events of ^{214}Bi decays in the light water(solid line).

References

[1] X.Chen; December 17, 2000; Radioactive Background Study, SNO-STR-2000-030.

[2] X.Chen; January 12, 2001; Determining the analysis threshold, SNO internal report.